TITLE

WALKWAY BRACKET FOR USE WITH HELICAL ANCHOR

CROSS-REFERENCE TO RELATED APPLICATION

This application claims the benefit of U.S. provisional patent application serial no. 60/406,587 filed August 28, 2002.

BACKGROUND OF THE INVENTION

The present invention relates generally to a screw anchor apparatus and in particular to a bracket for use with a helical anchor in supporting walkways.

Helical or screw anchors are well known. Helical anchors are utilized in the geotechnical industry to anchor building foundations in unstable soil and to stabilize and/or repair the integrity of existing foundations and the like. Walkways, such as environmental walkways, are utilized in environmentally sensitive areas, construction sites, excavation sites and other locations where it is advantageous for providing a walking surface that is above the level of the ground. These walkways are often supported by helical anchors due to poor site soil quality and to minimize the environmental impact of the walkway on the soil and vegetation in the area. The helical anchors are typically attached to the walkways by support brackets and the like. Often, the helical anchors and brackets must be disadvantageously designed and constructed on the construction site and are not easily adjustable for specific site conditions.

It is desirable, therefore, to provide an integrated support for a walkway supported by a screw anchor that is customizable at the construction site and reduces the amount of time required to install the walkway.

SUMMARY OF THE INVENTION

A bracket apparatus for connecting and supporting a beam of a walkway and a battered helical anchor includes a beam restrainer portion having a generally horizontally extending bottom plate for supporting a beam and at least one generally vertically extending side plate for attachment to the beam. A generally vertically extending shaft includes an upper end attached to the bottom plate and a lower end. The shaft includes a connecting plate attached thereto and extending radially therefrom. A connector assembly

includes an upper end for connecting to the connecting plate and a lower end for connecting to an upper end of the battered helical anchor.

The connector assembly of the present invention forms a robust connection between the restrainer portion and the battered helical anchor and, therefore, is operable to transmit forces from the restrainer portion to the battered helical anchor. Because this robust connection, the walkway bracket apparatus is advantageously able to resist walkway movement in all directions. The present invention advantageously provides an apparatus that integrates a walkway support and a screw anchor assembly for supporting walkways in conjunction with the use of a helical anchor. The present invention also provides an apparatus that is easily adjustable for specific site conditions.

DESCRIPTION OF THE DRAWINGS

The above, as well as other advantages of the present invention, will become readily apparent to those skilled in the art from the following detailed description of a preferred embodiment when considered in the light of the accompanying drawings in which:

Fig. 1 is a perspective view of a bracket and anchor apparatus in accordance with the present invention before assembly; and

Fig. 2 is a perspective view of the bracket and anchor apparatus shown in Fig. 1 after assembly.

DESCRIPTION OF THE PREFERRED EMBODIMENT

A bracket and anchor apparatus **10** is shown in Figs. 1 and 2 for use in supporting walkways (not shown). The apparatus **10** includes a bracket **11**, a connector assembly **12** and a battered helical anchor **13**. The bracket **11** has a beam restrainer portion **14** formed in a generally U-shape for retaining a generally horizontally extending beam (typically wooden and not shown) which supports a floor of a walkway (not shown). The restrainer **14** has a horizontally extending bottom plate **14a** upon which the beam rests and a pair of spaced apart vertically extending beam restraining side plates **14b** restraining sideways movement of the beam. A plurality of apertures **14c** are formed in the side plates **14b** for receiving fasteners (not shown) for securing the beam to the restrainer **14**. The apertures **14c** may be formed so as to receive fasteners that pass through each of the side plates **14b** and the beam. Alternatively, the apertures **14c** may be formed so as to receive fasteners,

such as screws or the like, that are embed in the beam while passing through only one of the side plates **14b**. The dimensions of the restrainer **14** including the spacing between the side plates **14b** can be selected to coordinate with the size of the beam to be supported. Although the restrainer **14** is shown formed as an integral part, one or both of the side plates **14b** could be movably attached to the bottom plate **14a** to accommodate different width beams, or a single side plate **14b** could be located centrally on the bottom plate **14a** to receive a beam on either side thereof. For example, the restrainer **14** could be formed as a pair of generally L-shaped members each including one of the side plates **14b** and a bottom plate (similar to the bottom plate **14a**) with the bottom plates overlapped to form a generally U-shaped member. One or both of the bottom plates would include an elongated bolt hole for receiving a bolt thereby adjustably positioning and securing together the L-shaped members.

The bottom plate **14a** is attached to an upper end **15a** of a vertically extending shaft **15** either fixedly, such as by a welded connection, or removably, such as with suitable fasteners or the like. The shaft **15** is hollow and has an open lower end **15b** sized to slip over an upper end of a typical helical anchor when used in a conventional manner. A connecting plate **16** extends radially from a central portion of the shaft **15** and has an aperture **17** formed therein. Preferably, the connecting plate **16** is welded to the central portion of the shaft **15**. The connecting plate **16** extends in a plane that is between horizontal and vertical, such as an approximately 45° angle relative to a horizontal plane of the bottom plate **14a** which plane is parallel to a longitudinal axis **18** of the restrainer **14**. Also, the connecting plate **16** extends radially from the shaft **15** along an axis **19** that is at an approximately 45° horizontal angle relative to the longitudinal axis **18**. Although 45° angles are used in this example, the two angles can be different and any suitable angles and directions can be used. The orientation of the connecting plate **16** advantageously permits the battered anchor **13** to resist walkway movement in all directions.

The connector assembly **12** has a U-shaped bracket **20** with a central portion **20a** connecting a pair of legs **20b**. The legs **20b** receive an upper end **13a** of the battered anchor **13** therebetween. Both the legs **20b** and the upper end **13a** have an aperture **13b** formed therein for receiving a fastener **21** to attach the connecting bracket **12** to the anchor **13**. A threaded rod **22** has a lower end **22a** that extends through an aperture formed in the central portion **20a** and engages the upper end **13a**. A first nut **23** and a second nut **24**

threadably engage the rod **22** on opposite sides of the central portion **20a** and, when the bracket and anchor apparatus **10** is assembled, are rotated into contact with the central portion **20a** to fix the rod **22** in place. With the rod **22** fixed in placed, the bracket and anchor apparatus **10** is in a state suitable to be connected to the beam restrainer portion **14**.

During assembly, an upper end **22b** of the rod **22** is inserted into the aperture **17**, best seen in Fig. 2, and a third nut **25** on the rod **22** is rotated into contact with a lower surface of the connecting plate **16** to transfer a compression load from the bracket **11** through the connector assembly **12** to the upper end **13a** of the anchor **13**. A fourth nut **26** (shown in Fig. 1 and unattached) is threaded onto the upper end **22b** and rotated into contact with an upper surface of the connecting plate **16** to transfer a tension load from the bracket **11** through the connector assembly **12** to the upper end **13a** of the anchor **13**. The nuts **23**, **24**, **25**, and **26** allow the apparatus **10** to be adjusted on the construction site, advantageously providing greater flexibility when the apparatus **10** is installed. The nuts **25** and **26** cooperate with the threaded rod **22** to accommodate differences in the spacing between each of the connecting plates **16** and the upper end **13a** of the associated screw anchor **13** at the installation locations along a walkway. When assembled, the connector assembly **12** forms a robust connection between the restrainer portion **14** and the battered helical anchor **13** and, therefore, is operable to transmit forces from the restrainer portion **14** to the battered helical anchor **13**, allowing the apparatus **10** to resist walkway movement in all directions.

In accordance with the provisions of the patent statutes, the present invention has been described in what is considered to represent its preferred embodiment. However, it should be noted that the invention can be practiced otherwise than as specifically illustrated and described without departing from its spirit or scope.